

## **Remarks**

This Response is considered fully responsive to the Office Action mailed September 17, 2008. Claims 4-10 were pending in the application of which claims 7, 8, and 10 have been withdrawn from consideration. Claims 4-6 and 9 stand rejected. In this Response, claims 1-3 and 7-10 are cancelled, and new claims 11 and 12 are added. Furthermore, claims 4-6 are amended to correct minor typographical errors. Claims 4-6, 11, and 12 are now pending in the application. Reexamination and reconsideration are requested.

## **Rejection Under 35 U.S.C. § 103**

The Office has rejected claims 4 and 5 under 35 U.S.C. §103(a) as being unpatentable over the combined teachings of Gross et al., U.S. Patent 4,030,541 (“Gross”) and Norbäck, U.S. Patent No. 4,246,962 (“Norbäck”). The Office also cites Maute, U.S. Patent No. 6,648,067 (“Maute”) as an alternative to Gross. The Applicant respectfully traverses the rejection for at least the following reasons.

Generally, the technology disclosed in the present application relates to a heat exchanger, including a single piece heat exchange element formed from a single piece compressed preform without welding or assembly. The single piece heat exchanger element is enclosed in a casing provided with cooling inlets and outlets for two confined fluids. The single piece heat exchange element forms a first confined fluid passage, and the space between the single piece heat exchange element and the casing provides a second confined fluid passage. The single piece heat exchange element forms a heat exchange surface across which heat is exchanged between the two confined fluids.

In contrast, Gross discloses a multi-element radiator of plastic material, wherein vertical water pipes are connected between upper and lower horizontal tube sections. Gross, Abstract. Each combination of connected water pipes and tube sections forms a radiator element. Gross, col. 2, lines 32-36. Multiple radiator elements may be welded together to form the multi-element radiator. Gross, col. 2, lines 49-54.

Maute discloses a stack of heat exchanger plates stacked into a heat exchanger stack. Maute, Abstract. The plate stack 10 is made out of eight individual heat exchanger plates that are stacked on top of each other horizontally. Maute, col. 3, lines 46-49. Each heat exchanger plate 12 includes three humid air channels 14 running parallel to each other.

Norbäck discloses layers of corrugated foils stacked to define a lattice of narrow passageways (to pass a liquid medium) and wider passageways (to pass a gaseous medium). Norbäck, Abstract. Various points along the foil layers contact other layers (see e.g., point 26).

The Applicant respectfully asserts that claim 4 recites specific structural features that Gross fails to disclose or suggest. For example, among other features, claim 4 recites a single heat exchange element comprising a stack of hollow plates. In contrast, Gross discloses a radiator element formed as a system of vertical water pipes connected between upper and lower horizontal tube sections. Gross fails to disclose or suggest plates of any kind, whether hollow and/or stacked. Moreover, to connect radiator elements, individual radiator elements of Gross must be stacked and welded together, which fails to anticipate or make obvious the single heat exchange element having a stack of hollow plates, as recited in claim 4.

Claim 4 also recites specific structural features pertaining to the heat exchanger element and the stack of hollow plates, such as their formation as a single active part without assembly or welding, a lack of contact between internal faces of hollow plate walls and between external faces of walls of contiguous hollow plates, separation spacing of internal and external faces of hollow plate walls, etc. These and other features recited in claim 4 are absent from Gross. In fact, the Office acknowledges that Gross fails to show a uniform thickness flow passage in connected heat exchanger elements but, failing to provide documentary evidence of the features recited in claim 4, appears to take official notice of facts not on the record pertaining to a wide range of features missing in Gross, including those listed in this paragraph and other features recited in claim 4. The Office asserts that it is known:

in such stacked element designs to form elements with a single flow passage that extends essentially throughout the extent of the element, wherein the walls of the tubular elements are formed with corrugations for mechanical rigidity, flow mixing, and increased surface area, and are uniformly spaced to allow flow obstruction for the confined liquid.

Without acquiescing to the Office's suggestion that claim 4 recites features identified in the quoted statement, the Applicant respectfully traverses the Office's factual assertion on the ground that it is not properly officially noticed and is not properly based on common knowledge. Official notice that is not supported by documentary evidence should only be taken where the facts asserted are capable of instant and unquestionable demonstration as being well-known. See *In re Ahlert*, 424 F.2d 1088, 1091, 165 USPQ 418, 420 (CCPA 1970); see also MPEP 2144.03.

It is unclear what the Office is referring to as “such stacked element designs.” The invention recited in claim 4 is not a plurality of stacked elements but a single, unwelded and unassembled heat exchanger element including stack of hollow plates. Therefore, the asserted facts remain open to dispute.

If the Office is referring to Gross as the “such stacked elements,” the Applicant respectfully points out that Gross does not disclose a single flow passage but multiple flow passages through the multiple vertical water tubes and horizontal tube sections, as acknowledged by the Office in its reference to FIG. 2 of Gross. Furthermore, stacking individual radiator elements in Gross requires welding (Gross, col. 2, lines 49-54). Also, Gross does not disclose walls of the tubular elements that are uniformly spaced – instead, both interior and exterior walls of the Gross tubes differ in their spacing at different points along the tubes. In fact, Gross states that it is “advantageous to diminish the diameter of the pipes near the junctions of the tube sections.” Gross, col. 2, lines 9-10. Accordingly, the Applicant disputes the facts asserted by the Office, both in terms of their accuracy and their applicability to the claimed invention and/or the cited reference.

Furthermore, if official notice is taken, the basis for such reasoning must be set forth explicitly, including specific factual finding predicated on sound technical and scientific reasoning to support the conclusion of common knowledge. See *In re Soli*, 317 F.2d 941, 945-46, 137 USPQ 797, 800 (CCPA 1963); see also MPEP 2144.03. As discussed, the Office’s statement is unclear and provides no technical or scientific reasoning to support the conclusion of common knowledge. The Office has not cited any documentary evidence of a single heat exchanger element including a stack of hollow plates, much less any evidence upon which to base the subject matter of the apparent official notice. The Office merely states a conclusion that such designs are known, without providing any basis for determining whether the conclusion is actually true and well known. Furthermore, the apparent official notice does not apply to most of the features recited in claim 4. The Office’s statement addresses “walls of tubular elements ... formed with corrugations” whereas claim 4 recites walls of stacked hollow plates forming an elementary conduit of the active part. The Office does not explain why its statement is even relevant to claim 4, much less provide a specific factual finding applicable to claim 4. Accordingly, the Office fails to provide an explicit basis for the reasoning of its asserted facts.

In two alternative assertions, the Office combines Gross with Norbäck to reject claim 4. However, Norbäck discloses layers of corrugated foils assembled into define various passageways. Norbäck fails to disclose or suggest a single heat exchange element comprising a stack of hollow plates recited in claim 4, and further fails to disclose or suggest the other structural features recited in claim 4 that are also missing from Gross. Accordingly the combination of Gross in light of Norbäck fails to disclose or suggested the structural features recited in claim 4.

The Office provides yet another alternative ground for rejection using the Maute reference in view of Norbäck. While Maute discloses a stack of heat exchanger plates stacked into a heat exchanger stack, each plate is separate from another, and the stack is assembled by stacking one plate on top of another. Accordingly, the individual heat exchanger plates must be assembled into a stack of plates, which fails to anticipate or make obvious the single heat exchange element having a stack of hollow plates, as recited in claim 4. Further, the interior and exterior walls of the heat exchanger plates of Maute contact each other to create a closed channel 14 and are not separated at all points from one another by narrow, substantially constant spaces. As yet another distinction, Maute does not disclose a single active part formed without assembly or welding a stack of hollow plates and two transverse feed manifolds. Norbäck does nothing to fill these significant gaps in Maute.

The Applicant further submits that one of ordinary skill in the art would not be motivated or even capable of combining Gross and Norbäck to create a heat exchanger element recited in claim 4. While the two references relate generally to heat exchangers, the designs are too radically different (e.g., a tubed radiator element vs. a stack of corrugated foils) to motivate combination, much less a combination that discloses all of the recited features of claim 4.

For at least the foregoing reasons, the Applicant respectfully asserts that the Office has failed to state a prima facie case of obviousness for claim 4.

Nevertheless, claim 4 has been amended to further recite that the stack of hollow plates is “formed by a compression of an accordion-shaped polymer preform produced by thermo-blowing and having biconvex bellows”. Gross, Maute, and Norbäck fail to disclose or suggest this feature as recited in claim 4. For the foregoing reasons, the Applicant respectfully request withdrawal of the rejection based on Gross in view of Norbäck or Maute in view of Norbäck.

The Office has rejected claim 5 under 35 U.S.C. §103(a) as being unpatentable over the combined teachings of Gross and Norbäck as applies to claim 4. The Applicant respectfully traverses the rejection for at least the following reasons. Claim 5 depends from claim 4, which is believed to be allowable. Accordingly, claim 5 is allowable for at least the same reasons as claim 4. Allowance of claim 5 is therefore respectfully requested.

The Office has rejected claim 6 under 35 U.S.C. §103(a) as being unpatentable over the combined teachings of Gross and Norbäck as applies to claim 4 and in further view of Schukey, U.S. Patent No. 5,121,792 (“Schukey”). The Applicant respectfully traverses the rejection for at least the following reasons. Claim 6 depends from claim 4, which is believed to be allowable. Accordingly, claim 6 is allowable for at least the same reasons as claim 4. Allowance of claim 6 is therefore respectfully requested.

The Office has rejected claim 9 under 35 U.S.C. §103(a) as being unpatentable over the combined teachings of Gross and Norbäck as applies to claim 4 and in further view Blomgren, U.S. Patent No. 6,016,865 (“Blomgren”). Claim 9 has been cancelled.

### **New Claims**

New Claims 11 and 12 are added, including at least one single piece heat exchange element forming a heat exchange surface from an accordion-shaped, single piece, compressed preform produced by thermo-blowing and having biconvex bellows. Accordingly, each new claim is believed to recite apparatus that is not disclosed or suggested in Gross, Maute, Norbäck, Schukey, Blomgren or other references on record.

### **Extension of Time**

Applicant hereby petitions for a 3-month extension of time and the accompanying fee is submitted herewith. Applicant believes no other fees or petitions are due with this filing. However, should any such fees or petitions be required, please consider this a request therefor and authorization to charge Deposit Account No. 50-3199 as necessary.

### **Conclusion**

Claims 4-6 and 11-12 are currently pending in the application. The Applicant has fully responded to each and every objection and rejection in the Office action dated September 17, 2008 and believes that claims 4-6 and 11-12 are in condition for allowance. The Applicant therefore requests a timely Notice of Allowance be issued in this case.

If the Examiner should require any additional information or believes any issues could be resolved via a telephone interview, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,

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Date

/Richard J. Holzer, Jr./  
Richard J. Holzer, Jr., Reg. No. 42,668  
USPTO Customer No. 86879

HENSLEY KIM & HOLZER, LLC  
1660 Lincoln Street, Suite 3000  
Denver, Colorado 80264  
Tel: 720-377-0770  
Fax: 720-377-0777